

The Safety page has a new name after more than 2,000 employees voted in the final election. Story on Page 3.



Scientists living in the Antarctic region help JSC researchers study isolation behavior. Story on Page 5.

Space News Roundup

Vol. 35

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No. 3

Goldin names Abbey JSC director

George Abbey has been named JSC director effective immediately, NASA Administrator Daniel S. Goldin announced Tuesday.

"George Abbey is uniquely qualified to lead the Johnson team into the future," Goldin said. "Over the course of his eminent career with NASA, he has distinguished himself as an innovator and pioneer at all levels of agency management."

Abbey had been serving as acting director at JSC since August 1995. His career in federal service spans

over 40 years. His career with NASA began in 1967.

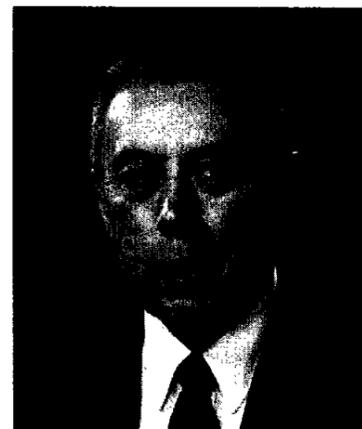
After being detailed to the newly opened Manned Spacecraft Center in 1964, Abbey resigned from the Air Force and joined the center's staff in 1967 as technical assistant to the manager, Apollo Spacecraft Program. He was assigned as technical assistant to the director in 1969.

From January 1976 to March 1985, Abbey served as director of flight operations, responsible for operational planning as well as over-

all direction and management of flight crew and flight control activities for all human space flight missions. In March, 1985, he became the director of the newly-formed Flight Crew Operations organization responsible for the selection, management and direction of flight crews as well as center aircraft operations.

Abbey was appointed deputy associate administrator for space flight at NASA Headquarters in March 1988. Beginning in July 1990, he served as deputy for operations

and senior NASA representative to the Synthesis Group chaired by Lt. Gen. Thomas Stafford and charged with defining strategies for returning to the Moon and landing on Mars. In July 1991, Abbey was appointed senior director for civil space policy for the National Space Council, Executive Office of the President. He served in this capacity until appointed special assistant to the administrator of NASA in April 1992. He was named deputy director of JSC in January, 1994.



George W.S. Abbey



President Bill Clinton welcomes home the STS-72 crew at Ellington Field. Also from left are, JSC Director George Abbey, a Secret Service agent, Mission Specialists Dan Barry, Winston Scott and Koichi Wakata, Pilot Brent Jett, Mission Specialist Leroy Chiao and Commander Brian Duffy.

JSC Photo by Mark Sowa

President greets Endeavour crew at Ellington Field

By Karen Schmidt

When the STS-72 crew returned to Ellington Field Saturday, they were greeted by a surprise visitor, President Bill Clinton.

"I am so glad that I happen to be in Houston and at the airport at the right time," Clinton said to the crowd that had gathered to welcome home the six astronauts. "On behalf of the people of the United States, we are very proud of this mission proud of this crew, we were thrilled by its success and we're glad to have them home."

Clinton took a few moments to congratulate the agency for its cooperative efforts and its scientific successes.

"Our space program is an important part of our partnership for world peace. It is an important part of how we relate to and work with the Japanese, the Russians and others in building a more cooperative, safer world."

"Our space program also is an important part of research we do in trying to solve medical and environmental mysteries," he added. "NASA

has been a major, major force in helping us to figure out ways to save our planet Earth as we accommodate more population and economic growth. So I ask all of you, remain steadfast in support for America's investment in space and in our future together with our friends and allies through out the world," Clinton said.

STS-72 Commander Brian Duffy was overwhelmed by the reception. "Wow," he began. "What a flight, what a mission. I think the work we did over the last nine days will continue well into the future. This flight can best be summed up by the word—teamwork. It began right from the start, when the NASA and the NASDA folks were getting together and reached its apex during this last week when the ground team did just an great job," Duffy said.

Endeavour's commander praised team members in Houston and Florida as well as Japan. Pilot Brent Jett reflected on how he had to learn to do basics in space. "For a first time

Please see **ROOKIES**, Page 6



See related story on Page 6

Columbia moves to pad next week

By James Hartsfield

With Endeavour home after a virtually flawless start to the new year, activities at Kennedy Space Center remain on schedule readying Columbia for the second mission of 1996, a launch of STS-75 in targeted for about Feb. 22.

Columbia was moved to the Vehicle Assembly Bldg. to be mated with the STS-75 solid rockets and fuel tank late Tuesday, and the shuttle is scheduled to be moved to KSC's Launch Pad 39B Monday.

The Tethered Satellite System, one of the primary cargoes for Columbia, was hauled to the launch pad in a payload canister Thursday.

The STS-75 crew—Commander Andy Allen; Pilot Scott Horowitz; Payload Commander Franklin Chiang-Diaz; Mission Specialists Jeff Hoffman, Claude Nicollier and Maurizio Cheli; and Payload Specialist Umberto Guidoni—are scheduled to travel to KSC Thursday and Friday for a dress rehearsal of the launch countdown. Shuttle managers plan to meet on Feb. 9 for a review of all mission preparations, following which a firm launch date will be announced.

In addition to a reflight of TSS, STS-75 will carry the United States Microgravity Platform-3 for a 14-day flight.

Following its weekend landing from STS-72, an inspection of

Endeavour found the spacecraft in good condition, with minimal damage from debris during its flight. This week, work has begun to remove the Japanese Space Flyer Unit satellite from the cargo bay as well as NASA's OAST-Flyer satellite.

Next up after Columbia will be Atlantis on STS-76, the third shuttle-Mir docking mission, planned to launch in mid-March. Atlantis is now in KSC's Bay 1 shuttle processing hangar.

Work this week on Atlantis included installation of the tunnel adapter, installation of the main engines, and installation of the docking system. Also, in the VAB, stacking of the STS-76 solid rockets has been completed.

Veteran astronauts selected for STS-80, STS-83 missions

By Kyle Herring

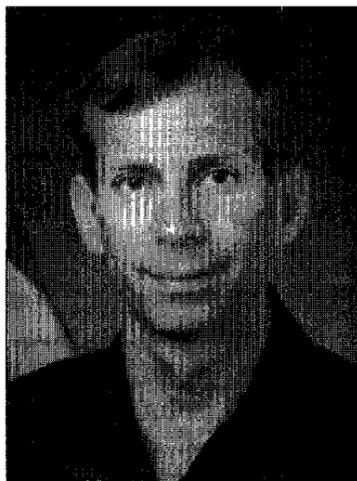
An experienced team of astronauts has been assigned to the STS-80 mission and two astronauts have been assigned to STS-83, a 16-day microgravity experiment mission.

Ken Cockrell will command the third flight of the Wake Shield Facility aboard Columbia scheduled for November 1996. He will be joined on the flight by Pilot Ken Rominger and Mission Specialists Tammy Jernigan, Tom Jones and Story Musgrave. In addition, Janice Voss and Don Thomas, have been named payload commander and mission specialist,

respectively, for the long-duration microgravity science laboratory flight of Columbia scheduled for spring 1997. The commander, pilot, flight engineer and payload specialists will be named at a later date.

STS-80 will mark the third flight of the WSF that flew on STS-60 and STS-69 and the second flight of the Orbiting Retrievable Far and Extreme Ultraviolet Spectrometer satellite. Both satellites will be deployed and retrieved during the mission. The saucer-shaped WSF is designed to fly free of the shuttle,

Please see **STS-80**, Page 6



Ken Cockrell

Chronicle lauds NASA work

[Editor's note: This is a reprint, with permission, of a Jan. 12 Houston Chronicle Publishing Co. editorial. All rights are reserved.]

Critics of the U.S. space program come in two schools: those who say NASA is run by a bunch of reckless cowboys with insufficient regard for safety and fiscal restraint, and those who believe the agency is just another corrupt and wasteful bureaucracy, led by stodgy administrators who lack the resourcefulness to live within a budget and the daring to make further conquests in outer space.

NASA is certainly an imperfect enterprise, but despite the grumblers, NASA's hits just keep on coming.

The launch of the space shuttle Endeavour on Thursday cements the growing U.S. Japanese relationship in space. If all goes well on Saturday, Endeavour's crew of five Americans and one Japanese will retrieve a Japanese satellite with an array of experiments, including two frozen newts (no relation to the House speaker) and their eggs.

This shuttle mission is all-purpose, retrieving one satellite and releasing

another. But the overriding task is to exercise the international cooperation needed to deploy and operate the permanent U.S. space station.

On recent flights, shuttles have docked spectacularly with the Russian Mir space station. NASA's repaired Hubble telescope has been sending back mind-boggling images of the most distant objects in the cosmos. Last month, NASA's Galileo spacecraft went into orbit around Jupiter after sending a smaller probe on a suicide mission into the massive planet's turbulent atmosphere.

Looking to the future, the space agency has announced plans for a new generation of miniature space probes that will be able to explore the edges of the solar system at a fraction of the cost of their predecessors. Those savings will enable NASA to balance its manned and unmanned efforts when the deployment of the space station begins to gobble much of its funding.

At a time when the federal government is held in low repute, the space agency is showing it can make significant progress while tightening its belt. How many other federal agencies could make the same claim?

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

Rodeo Carnival: Packages includes 28 ride tickets for \$10 and two for one food tickets.

Space Center Houston: Discount tickets, adult, \$8.75; child (3-11), \$7.10.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4; Sony Loew's Theater, \$4.75.

Stamps: Book of 20, \$6.40.

JSC history: *Suddenly, Tomorrow Came: A History of the Johnson Space Center.* Cost is \$11.

Metro tickets: Passes, books and single tickets available.

Upcoming events: Go Texan party Feb. 16 at the Gilruth.

JSC

Gilruth Center News

Sign up policy: All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

EAA badges: Dependents and spouses may apply for photo identification badges from 7 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

Stamp club: Meets at 7 p.m. every 2nd and 4th Monday in Rm. 216.

Aerobics: Classes meet at 5:30 p.m. Monday, Tuesday, Thursday and Friday and 9:30-11 a.m. Saturdays. Cost is \$35 for 11 weeks.

Women's self defense: Martial Arts training for women only from 5-6 p.m. Tuesdays and Wednesdays. Cost is \$25 a month.

Weight safety: Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. Feb. 8. Pre-registration is required. Cost is \$5.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays.

Aikido: Martial arts class meets from 5-7 p.m. Wednesday. Cost is \$25 per month. New classes begin the first of each month.

Ballroom dancing: Cost is \$60 per couple. For additional information call the Gilruth Center at x33345.

Country and Western dancing: Beginner class meets 7-8:30 p.m. Monday. Advance class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

Fitness program: Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Wier at x30301.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP2, or deliver them to the deposit box outside Rm. 181 in Bldg. 2. No phone or fax ads accepted.

Property

Lease: Egret Bay condo, 2-2-2CP, split plan, washer/dryer, fireplace, fans, good condition, \$525 mo + deposit. 486-8551.

Sale: Near Medical Center, Holly Hall townhome, 2-2.5-2, 1648 sq ft, major appliances included, guest parking, security, available immediately, \$79.9k. Jack Cohen, 488-3171.

Lease: Middlebrook, 3-2-2, 1700 sq ft, available 2/18/96, \$825 mo + deposit. Thresa, x34720, 488-3849.

Rent: Duplex, Santa Fe, TX, 3-1.5, LRM, DRM, appl, central air/heat, brick ext, W/D conn, sm yard, non-smokers, no pets, \$500/mo + sec deposit. 244-0250.

Lease: Bay Glen, 3-2.5-2 + study/formal dining room, non-smokers, 1600 sq ft, huge covered patio, big back yard, quiet cul-de-sac, \$1050 mo. Leah, x34544 or 480-8780.

Sale: Heritage Park Village, 2 story, 4-2.5-2, ~2400 sq ft, oversized corner lot ~1/3 acre, master bedroom downstairs, numerous upgrades, \$119.9k. Eric, x31917.

Lease: Meadow Green, 3-2.5-2, 2 story, cul-de-sac, formal dining room, garage door opener, fans, good condition, \$900 mo + deposit. 486-8551.

Sale: Waterfront home, 4,140 sq ft, 3 to 5 BDR's, lg garage, 2 carports, covered deck, \$250k. 474-2214.

Rent: Waterfront Townhouse, The Wharf, LC, roomy 2-2-1 plus loft, quiet, \$105/mo. 244-2224.

Rent: Waterfront executive Townhome, South Shore Harbor Marina, furn, 2 MSTR suites, 2.5, 60' boat slip, \$1.9k/mo. 334-5000.

Sale: Waterfront Bay, 4-4, carport, game room, extras, boat lift. 339-3498.

Sale: Boat slip on Clear Lake w/roof & motorized boat hoist for power boats, \$7.5k. 474-4922.

Sale: Wooded 1 acre lot, Enchanted Valley Estates, NW Hou, deed restricted w/all util, \$9.9k. 333-4609.

Sale: Wooded corner lot, Corinthian Pt. Lake Conroe, restricted, \$4.5k. 282-6664 or 409-856-3483.

Rent: Arkansas cottage in the woods overlooking Blue Mountain Lake & Mount Magazine, fully furnished w/massive fireplace, antiques, views, \$50 day or \$250 week. Corcoran, x47806 or 334-7531.

Cars & Trucks

'84 Honda Accord, works great, no rust, \$1.6 obo. 326-5178.

'86 Mazda B200 convertible minitruck, low mileage, lots of extras, ready to paint, \$2.2k obo. x32634.

'91 Peugeot 405S, mint condition, loaded, 76k mi, \$5.4k obo. 282-4587.

'94 Explorer XLT, green w/taupe, power & leather seats, garage kept, 1 owner, NADA list \$21.1k, \$19.5k nego. 481-5580.

'86 Ford Taurus LX, excellent condition, 1 owner, many options. 482-1076.

'80 CJ7 Renegade, 304 V8, 4 spd, soft top, less than 10K mi on professional engine overhaul, clean, garaged, excellent mechanical condition, \$5.5k firm. 474-7331.

'87 Ford Taurus, automatic, 4 dr, \$2.8k. Melanie, 280-0473.

'83 Buick Regal, 4 dr, good work car, \$750. 489-0625.

'80 Chevy 1 ton, single axle, good work truck, needs motor, \$1.5 obo. 489-0625.

'84 Buick LeSabre Limited, 2 dr, 57k mi, good condition w/some cosmetic work needed. A/C, power steering/brakes, AM/FM, V-8 305 engine, \$2.2k. 474-3517.

'89 Plymouth Voyager LE minivan, 7 pass, A/C, overhd console, pwr, AM/FM/cass, cruise/tilt, capt chairs, gray/wood grain, \$4.9k. x39152 or 333-2218.

'93 Nissan 240sx Sport Coupe, maroon, ex cond, new tires/brakes, auto, A/C, AM/FM/cass, ext warr, 39k mi, \$11.9k. Tammy, x38853 or 488-5352.

'95 228 Camaro, T-tops, black w/gray int, Delco Bose stereo/CD player, alarm/tint, pwr, ex cond, 14.5k mi, \$18.7k. Pam, 482-4162 or 286-1731.

'88 Chevy Spectrum, 1 owner, tinted windows, std, 4 dr, ex work car, \$1,465. Lorraine, 480-0014 x33.

'95 Saturn SL2, 21k mi, white, 5 spd, \$13k. x34932 or 554-8465.

'90 Subaru Legacy, auto, A/C, PW/PL/PM, cruise, tilt, 61k mi, \$6.5k. 333-4609.

'86 Olds Royal Brougham, loaded, leather, 104k mi, runs well, \$2,850. 488-4412.

Boats & Planes

'88 Yamaha Wave Runner w/trailer, needs to be tuned up & serviced, new life jackets, service manual, \$1,850 obo. x32634.

Procraft bass boat, 15', 85 hp Evinrude, stainless steel prop, 12/24 trollin motor, depth finder, 2 live wells, garage kept, very clean, \$2.5k. David, 478-2974.

Sunfish sailboat in good cond on Lake Placid 1 block off I-10 at Sequin, \$300. x35180 or 326-3706.

'92 Kawasaki Jet ski 750 Super Sport, new engine, trailer, life vest, \$3.5k. x32264 or 488-5962.

Sailboard, 9'7" Roberts custom course slalom, \$750 firm. David, 486-8487.

MonArk sailboat, 10', good cond, \$300. David, x34153 or 338-8783.

Cycles

'86 Honda Magna 700cc, ex cond, \$2.5k. 488-6526.

'96 Honda XR250 dirtbike, warranty. 286-8822.

'94 Suzuki 40 Jr, low miles, \$750. Carl, x45159 or 328-6663.

Audiovisual & Computers

Sony car Discman portable CD player w/wireless remote & A/C adapter, \$85; Sony GVS-50 Hi-Fi video Walkman, 8mm VCR w/built in tunes & 1 CD viewing screen, new \$1.1k sell \$600; country music CD's large selection, \$5 ea; Sega Genesis Base unit w/1 controller, \$60; set of 3 Dolby ProLogic speakers, \$65; Fisher full sized stereo speakers, \$75 pr. bobby, 244-2444 or 488-4382.

Pioneer Laser disc CLD-53 Elite edition, 1 yr

Today

Gemini anniversary: A Gemini program will celebrate its 30th anniversary at 5 p.m. Jan. 26 at the Gilruth Center. Tickets cost \$5. For more information call Jo Carey at x30546.

Cafeteria menu: Special: fried chicken. Total Health: vegetable lasagna. Entrees: pollock hollandaise, beef stroganoff, vegetable lasagna. Vegetables: steamed broccoli, carrots vichy, Italian zucchini, breaded okra.

Monday

Cafeteria menu: Special: meat sauce and spaghetti. Total Health: potato baked chicken breast. Entrees: wieners and beans, sweet and sour pork chop, potato baked chicken, steamed fish, French dip sandwich. Soup: cream of broccoli. Vegetables: French cut green beans, seasoned rice, California vegetables, buttered beans.

Tuesday

Blood drive: JSC will host a blood drive from 7:30-11:30 a.m. and 1-3 p.m. Jan. 30 at the Gilruth Center. For more information call Marty Demaret at x36007.

Space discussion: June Scobee Rodgers, founding chairman of the Challenger Center for Space Science Education, will discuss "Space Simulation, an Innovative Educational Approach Created by Private-Public Sector Initiatives" at 8 p.m. Jan. 30 at HESS, 3121 Buffalo Speedway. Reservations may be made by calling 627-2283; cost is \$30 per person. For more information, call Michele Smith at 370-8338.

Cafeteria menu: Special: smothered steak with dressing. Total Health: baked potato. Entrees: beef stew, liver and onions, shrimp Creole, baked chicken, fried cod

fish, French dip sandwich. Soup: navy bean. Vegetables: steamed rice, seasoned cabbage, corn O'Brien, peas.

Wednesday

Toastmasters meet: The Spaceland Toastmasters Club will meet at 7 a.m. Jan. 31 at the House of Prayer Lutheran Church. For more information call Jeannette Kirinich x45752.

Astronomy seminar: The JSC Astronomy Seminar will meet at noon Jan. 31 in Bldg. 31, Rm. 129. Dr. Larry Friesen will discuss the 1996 American Astronomical Meeting held in San Antonio. For more information, call Al Jackson at 333-7679.

Cycle club: The Space City Cycle Club will meet at 5 p.m. Jan. 31 at the Grumman Bldg. at Ellington Field. For more information call Mike Prendergast at x45164.

Cafeteria menu: Special: salmon croquette. Total Health: baked potato. Entrees: roast pork, stir frybaked perch, steamed fish, vegetable lasagna, Reuben sandwich. Soup: seafood gumbo. Vegetables: mustard greens, okra and tomatoes, vegetable sticks, lima beans.

Thursday

Warning system test: The site-wide Employee Warning System will under go its monthly audio test at noon Feb. 1. For more information call Bob Gaffney at x34249.

Cafeteria menu: Special: stuffed cabbage rolls. Total Health: baked potato. Entrees: beef tacos, ham and lima beans, pork and beef egg rolls, steamed fish, catfish, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, green beans, buttered squash, pinto beans.

Friday

Cafeteria menu: Special: baked chicken. Total Health: roast beef au jus. Entrees: deviled crab, baked chicken, beef cannelloni, steamed pollock, Reuben sandwich. Soup: seafood gumbo. Vegetables: seasoned carrots, peas, breaded okra, steamed cauliflower.

Feb. 6

ABWA meets: The American Business Womens Association, Clear Lake Area Chapter will meet at 5:30 p.m. Feb. 6 at Bay Oaks Country Club. For more information call Nancy Hutchins at x34006.

Feb. 8

NPM meets: The National Property Management Association will meet at 5 p.m. Feb. 8. For more information and meeting location call Marie-France Smith x39309.

Airplane club meets: The Radio Control Airplane Club will meet at 7:30 p.m. Feb. 8 at the Clear Lake Park Community Bldg. For information call Bill Langdoc at x35970.

Feb. 9

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. Feb. 9 at the Lunar & Planetary Institute 3600 Bay Area Blvd. For more information call Chuck Shaw at x35416.

Feb. 14

PSI meets: The Clear Lake/NASA Area Chapter of Professional Secretaries International will meet at 5:30 p.m. Feb. 14 at the Holiday Inn on NASA Road 1.

The focus of the meeting is to orient new members and future members. Chapter members will present an overview of the goals and missions of PSI and the benefits of membership. For more information call Elaine Kemp at x30556.

warr, digital TBC sys, D-A converter, Legato-link, conversion, auto loading, film mode, S-video, compatible w/many disc types & sizes, \$600. 480-2578.

Hayes Accura 14.4 + 14.4 baud external fax modem w/manuals & software, \$75. Don, x36921 or 486-1830.

Various computer equipment, 9 pin Epson printer, \$50; 24 pin Epson FX 1050, \$75; 8 pin HP plotter color full auto paper, \$175. Brandon, 282-4587.

Pentium 100: 8 MB RAM, 1.2 GB HD, 1.2 FD, PCI controller, 256 K Cache, SVGA monitor, 1 MB diamond Stealth video card, Tower case, \$1.8k. 536-6401.

CompuAdd 386 computer w/1.2 MB 5.25" HD, 40 MB HD, 14" Samsung CVGA monitor, mouse, misc S/W; Panasonic KX-1124 (24-pin) dot matrix printer, \$500; IBM PCjr w/expansion chassis; IBM color monitor, 640k RAM, 2 5.25 drives, in working cond, \$100. Richard, x31488.

Compact discs, 24 hard & alternative rock, \$7ea or \$150 all. Frank, x33569 or 992-3515.

Brother word processor, ex cond, \$100. Frank, x33569 or 992-3515.

Amiga 2000, monitor, 2 HD, sound digitizer, video genlock, PC bridgboard, \$350. 282-2714.

IBM XT 286 w/monitor, ex cond, 6.22 DOS, \$125. 488-7318 or 763-0663.

Canon Bubble Jet 200 printer, laser quality, ex cond, \$100 cond. x30044 or 996-0981.

WD 125 MB IDE HD, ex cond, \$25. Charlie, x34647 or 488-4412.

Musical Instruments

Bach Stradivarius Silver trumpet w/case, mouthpiece, cleaning access, \$400; Casio ToneBank electronic keyboard, CT-625, w/CD sound source, 210 sounds, auto-rhythm/accompaniment/harmonize, \$250. Allyson, x39318 or 486-4663.

Photographic

Sharp VHS camcorder w/12x zoom, fader, time lapse, w/carry case, 2 batteries, charger, video cables, tripod, \$400 obo. 282-2808 or 286-9820.

Pets & Livestock

Sponky pet 3/4 Pygmy goat, white male, born 11/26/95, \$50. x30514 or 339-2129.

Free 3 homeless kittens, 2 persians, 1 gray tabby, need good home. Kim, x48749 or 559-2764.

Free 2 cats, 1.5 yrs, yellow striped male, neutered, declawed, calico female, spayed, declawed, current shots, supplies. 212-1396.

Household

King size waterbed, complete, \$150 obo. x38825 or 487-8018.

Desk & chair, brown laminated top, black metal sides, 5 drawers, included file drawer, good condition obo. 482-2396.

Country style qn sz bed w/mattress & box springs, \$100; qn sz sleeper sofa, \$150; blue recliner, \$65. Mark, x30918.

Custom made oak TV stand for up to 27" TV, also holds VCR and video tapes, \$100. Bob, 244-1758.

Kitchen/harvest table, 8', ash, trellis style, side benches, custom made, \$125. 326-4316.

China cabinet, \$500 obo. Warren, x34204 or 480-2954.

Twin bed w/frame, soft yet firm, excellent condition, \$200. John, 333-5256.

Bedroom set, full size, antique, green w/dresser, 5 drawers, chest & 2 night stands, Italian design, great cond, \$1.1k. Magdi Yassa, 333-4760 or 486-0788.

Rattan bedroom set, double headboard, triple dresser w/mirror, nightstand, \$300; rattan lounge chair/ottoman w/cushions, glass end table, \$300; coffee table, 2 end tables, \$25. 480-4131.

Fisher TV, 25" console w/remote, good working condition, \$125. 282-4587.

Gas dryer, \$75 or trade for freezer. 997-0756.

Magtag dishwasher w/butcher block top, can deliver, \$75. Jim, x38624 or 487-7132.

Queen sz waterbed hibernation series semi-motionless mattress, heater/liner & wooden frame. Chuck, 282-3908.

5 pc bunkbed set, \$275; wood desk, \$40; cabinet sewing machine, \$35; other misc items. 332-8444.

Sears 16' frostless refrigerator, brown, old but still working w/ice maker, \$125. L.G., 326-1946.

Westinghouse 700 watt lg microwave oven, ex cond, \$75 obo. 244-7188.

Wanted

Want personnel to join VPSI vanpool departing Meyerland Park & Ride at 7:05 am for JSC. Van pool consist of on-site personnel working 8 am/4:30 pm shift. Don Pipkins, x35346.

Want fixer upper house, \$10.k - \$50.k. 992-5080.

Want personnel to join VPSI vanpool, departing South Braeswood Park & Ride lot at 6:50 am, for JSC & offsite locations, 7:30 - 4:30 shift. Susan Gaynor, 282-5447 or Al Ruder, x34997.

Want non-smoking roommate to share 3 bedroom townhouse in Clear Lake area, \$350 mo w/bills pd. John, x30543 or 286-7384.

Want non-smoking housemate to share 3 bedroom, 4,000 sq ft gorgeous waterfront home on Taylor Lake, pool, boat dock, & hot tub, own furnished bedroom & bathroom, \$600/mo w/all bills pd. Leah, x34544 or 480-8780.

Want housemate to share 3-2.5, 4 story waterfront townhouse w/1 other person, amenities include community pool, private hot tub & tanning bed, 2 bars, 2 decks overlooking canal, boat slip, shared study & enclosed garage, \$595 mo + 1/2 utilities. Terry, x39234 or 335-0113.

Want canoe, bicycles, single speed preferred, small outboard motor, trollin motor. Gene, x38020 or 334-1505.

Want babysitter for Tue - Thur morning, references, guaranteed minimum, \$5/hr. Pam, 334-6922.

Want Yamaha 4814 open holed silver flute, 282-5324 or 488-8415.

Want to take over payments or buy '91 - '95 Toyota or Nissan. 867-8820.

Want STS-74 payload & experiment cloth patches & decals. Andrew, x34312 or 280-0647.

Miscellaneous

2 aluminum intake manifolds for Big Block Chevy, both square ported, \$150 obo will sell separate. x38825 or 487-8018.

Flex Force weight training equipment w/VKR and free action stepper, \$50. 486-7021.

Camel tent, canvas Alamo 375, 9' x 12', sleeps 7, center ht 84", light brown, \$125. Allyson, x39318 or 486-4663.

Persian carpets, Esphehan -11' x 14'; Naier silk 6' 6" x 9' 9", excellent in colors & design. 326-5178.

Ski/rowing machine, \$25; Christmas tree stand, heavy gauge plastic, tress up to 9', \$10. Warren, x34204 or 480-2954.

Stairstepper exercise machine w/upper body conditioner, electronic activity read out, \$135. Don, x36921 or 486-1830.

Iron railing for balcony, 4x8x4, on mounts, \$25. Ted, 482-8827.

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Safety is No Accident

January 1996

Safety Awareness Day '96 to be joint effort

A publication of NASA's Johnson Space Center for Employees' Safety and Health

JSC water to taste, smell better

Engineers are working to improve the taste and smell of JSC drinking water and expect to complete the work before year's end.

Modification of the Bldg. 322 Water Treatment Facility has begun and within the next six months JSC will have a new water treatment method. The modification work will help not only in the taste of the site water but also in control of coliform bacteria.

The potable water supply and distribution system that serves JSC was installed more than 30 years ago. The system has provided good quality water with few problems but with the age of the system maintenance becomes a more important issue. Maintenance problems have included water leaks because of piping deterioration and bacteria control due, in part, to an increased biofilm layer in the piping.

The new water treatment program will use hypochlorite, ammonia and a corrosion inhibitor. With the new system, the taste or odor of chlorine will not be present because of the reaction of free chlorine with the ammonia to form chloramines.

There are two drinking water quality issues at JSC. One is the safety or health quality and another is the odor or taste quality of the drinking water. The water distribution system at JSC was installed in the early 1960s and was designed for future growth and sized for fire protection, resulting in over sized piping. The distribution system also is a looped design and has a number of dead end legs. These features result in a low water flow in some parts of the distribution network. The water supplied to JSC is treated with chlorine gas in Bldg. 322.

Please see SYSTEM, Page 4



JSC Photo by Benny Benavides

June Larsen of Flight Crew Operations shows the reserve parking space she won for naming the safety page. Larsen's entry was chosen from more than 1,000 ballots.

Safety page gets new name

"Safety Is No Accident" becomes the name of Space News Roundup's safety page this week after being selected from more than 1,000 ballots.

The winning entry was submitted by June Larsen of Flight Crew Operations, who chose a parking space for a month as her prize.

"The slogan I submitted was actually inspired by my nephew who is president of a Corpus Christi safety business," Larsen said. "He and I are always having safety conversations and a few years ago I remember him telling me 'Safety is no accident.' I have held onto that thought and when I heard about the contest, I decided to share it."

The name was chosen in a two-tiered contest promoted by the Executive Safety Council.

Initially, JSC employees were asked to submit suggestions for new names. Nearly 500 suggestions, reflecting the principal themes of JSC's intensified safety consciousness—safety, health

and employee involvement—were received. Those entries were narrowed to six finalists by former astronaut Brig. Gen. Charlie Bolden and Texas State Trooper Steve Hargett. The six finalists were distributed for voting via memo to JSC employees in late November.

The change was made to better reflect the paper's true purpose. According to Acting JSC Director George Abbey, other than the Director's Corner feature, "the rest of the page is an employee newspaper—written by employees for employees."

The decision to let employees name the page is intended to demonstrate the center's commitment to involving all of its employees in a continuing effort to pull together and make JSC a center of excellence for occupational safety and health. The new name is being utilized in a new logo and masthead for the section.

Leaders OK resolutions to ensure safety

At a special meeting conducted just before the holidays, the Executive Safety and Health Committee made its New Year's resolutions.

These asset conservation resolutions involve issues and actions that are important to ensure a safer and healthier workplace for all JSC employees in the coming year.

"We have learned a lot in the past year about the way we do business ... and, more significantly, the way we want to do business," said Acting JSC Director George Abbey.

The committee resolved to:

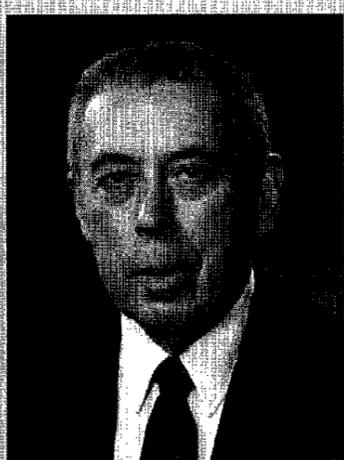
- Make JSC the safest NASA installation;
- Achieve significant, measurable progress toward recognition of JSC as a Center of Excellence for Occupational Safety and Health;
- Foster the mindset in all JSC employees that all mishaps can be prevented;
- Always do everything possible to maximize effective, two-way communication;
- Establish clear expectations and ensure their promulgation to and understand by all JSC employees;
- Better the NASA Headquarters-established fiscal '96 goals for lost workday case rates; and
- Reduce the JSC fiscal '96 lost workday duration/severity rate by 10 percent.

The new year's asset conservation resolutions were presented to the ESC, and all resolutions were approved by acclamation. Abbey ordered that they be adopted for immediate implementation, and encouraged strong participation, visible leadership and support by all members.

A new concept also was unveiled—that of the JSC "vision." The group decided not to use the standard Headquarters-generated formula as the sole means of measuring performance in lost workdays because the formula has been designed to smooth out erratic performance for top-level trend analysis. That formula produces conservative results which are not well-suited for goal setting in situations where major, dynamic and active changes in culture or program viability have occurred.

The JSC "vision" will be the target for performance at JSC, and the rate will be set at 10 percent below last year's. Considering that JSC performed 50 percent better last year than the previous year, the target is reasonable and attainable, said

Please see RESOLUTIONS, Page 4



Director's Corner

Both at work and at home, get in the habit of asking yourself, "Is this the safest way to do this?"

This is the time of year when we traditionally look ahead at what's in store for us in the coming year, and set new goals for ourselves. Energizing our safety awareness is probably one of the most positive New Year's resolutions that JSC civil service and contractor employees can make for 1996.

We have taken great strides in this area over the past year, and we'll have many more opportunities to make JSC a safer place to work in the coming year. The Executive Safety and Health Committee's New Year's Asset Conservation Resolutions (reported elsewhere on this page) are a good start in the right direction, and serve as a great example of the kind of activity I want to encourage. But these resolutions are useless if we don't live by them. Abiding by the safety rules of our individual jobs, taking appropriate precautions even when the rules aren't explicit and watching out for each other is all it really takes.

DuPont, which is highly regarded in the area of industrial safety, considers safety an integral element of good management. Safety is assessed and managed on a day-to-day basis, just like any other managerial element. I'm

going to share with you their safety philosophy because these principles clearly communicate the way I personally feel about the way we should do business here at JSC:

- All injuries can be prevented.
- Employee involvement is essential.
- Management is responsible for preventing injuries.
- Working safely is a condition of employment.
- All operating exposures can be safeguarded.
- Training employees to work safely is essential.
- Prevention of personal injuries is good business.

I want to assure you that the management of this center cares about your personal welfare and that of your families, and I urge you to take your "safety sense" home with you as well. Please take an active approach to safety and prepare yourself and your loved ones to avoid the potential mishap that is just waiting to happen. Both at work and at home, get in the habit of asking yourself, "Is this the safest way to do this?"

With that in mind, have a prosperous and safe new year.

George W. S. Abbey

Lockheed Martin workers achieve safety milestone

The employees of Lockheed Martin's Engineering, Test, and Analysis Program contract achieved a new record for time worked without a recordable lost-time injury or illness on Jan. 12, 1996.

The milestone of 134 days, and counting, is attributable to supportive and positive leadership and increased safety and health awareness by "all hands."

According to company management, this successful performance is due to several factors, including effective environmental safety and health programs and superb customer interfaces. Additional factors include effective hazard identification, reporting and elimination, as well as superior training and certification for Category I-III Hazardous Operations.

According to contract manager Ken Reightler, "Quite simply, we believe that an effective safety and health program requires a clear commitment, constant attention to detail, and continued professionalism by 'all hands.' As a result, we in the ETA Program continue to make safety our 'number one' priority."

Effective environmental safety and health programs are key components of the ETAP safety effort. Those programs include a revitalized program-level Executive Safety Committee that provides policy and program guidance

and a Safety and Health Operations Committee that is responsible for inter-departmental safety and health implementation.

In addition, a Hazardous Material/Hazardous Waste Point-of-Contact Program was developed to manage the identification, control and disposal of hazardous materials and waste. Since early 1995, the ETA Program has initiated numerous new process-level control documents and developed an in-house "close call" reporting system, as well as an Automated Safety Performance Evaluation System. Implementation of an ETAP ESH compliance master schedule/plan of action and milestones that identifies, tracks and corrects non-conforming ESH issues figured prominently in the picture. All of these programs have contributed significantly to Lockheed Martin's ESH program.

Another aspect of the ETAP safety effort is the establishment of superb customer interfaces. ETAP professionals effectively participate in the Engineering Directorate Safety Implementation Committee's efforts to ensure the safety and health of all JSC team members, both government and contractor. ETAP safety and health engineers also actively contribute to the JSC Contractor Safety Forum and were instrumental in many

Please see NEW, Page 4

New safety plan helps reduce work-related injuries

Continued from Page 3

of the successes associated with the August center-wide Safety Awareness Day.

ETAP encompasses effective hazard identification, reporting and elimination. In July 1995, the ETAP Safety and Product Assurance Department initiated a series of internal and external sitewide ESH compliance audits. The audits were designed to identify, report and eliminate hazards throughout all contractor-operated workplaces. Lockheed Martin ESH professionals from Kennedy Space Center provided compliance audit services both on- and off-site. Likewise, ETAP systems safety

engineers supported sitewide facility audits and operational readiness inspections. They performed in-depth hazard analyses on a variety of JSC facilities and processes.

Superior training and certification for Category I-III hazardous operations are included in the ETAP safety plan. Lockheed Martin information systems personnel and safety engineers developed an Oracle-based automated Training and Certification Records System. The system identifies, tracks, documents and coordinates training and certification requirements for all Lockheed Martin employees and subcontractors involved in Category I-III hazardous operations. This system

ensures that engineering test and analysis personnel supporting JSC are qualified to execute their assigned tasks and responsibilities in a safe, reliable manner.

During the period between Aug. 31 and Jan. 10, the workforce incurred only two recordable injuries requiring medical treatment. However, no time was lost during the period. For calendar year 1995, personnel experienced a 10 percent reduction in days away cases, along with an 84.4 percent decline in overall days away.

ETAP is a services contract headed by former astronaut Ken Reightler. It encompasses several primary functions to support JSC, including space

hardware development and integration, basic and applied research in life sciences, engineering analysis and simulation, facility maintenance and operations, and computational and software systems. The contract employs about 1,400 Lockheed Martin and subcontractor personnel located both on- and off-site at JSC. The employees are located in a variety of operational environments supporting the Engineering and Space and Life Science Directorates. The environments include thermal-vacuum chambers, chemical and science laboratories, energy system and crew and thermal testing facilities, machine shops, and hardware/software development and assembly labs.

Resolutions commit to safety vision

Continued from Page 3

Rich Dinkel, special assistant to the director. The NASA goal also will be retained as a reference point, and to remain in compliance with agency goals and strategic planning benchmarking.

The Lost Workday Duration/Severity rate deals with the number of days the employee is away from work in relation to each individual lost workday case. By reducing this rate, the job can be accomplished on schedule, on budget and with high quality.

The ESC also heard a review of JSC's safety performance over the last several years which showed significant improvements in every measured category since the institution of the safety and health committee system. Dinkel attributed the bulk of the improvements to the "dramatic increase in management attention that has been directed at the safety, health and well-being of the JSC workforce."

Although many new processes, procedures and hazard elimination efforts also have been implemented during this period, the benefits of those programs have not yet been realized, he added. Program changes usually begin to produce results only after about a year in organizations the size of JSC.

"The recent striking improvements in safety performance have been due to the reinvigorated efforts of our managers to become involved, and the workforce noticing that involvement and supporting it," Dinkel said.

He predicted that if JSC can keep involvement levels up, it will realize an even higher level of performance during the coming year. To put the safety performance statistics of the past year into context, Stacey Nakamura, chief of the Health, Safety and Environmental Compliance Office said the recent safety incidents that provided the basis for the performance data should be looked at individually. Nakamura said that the best thing to do is learn from mistakes.

JSC conducts seat belt survey

A recent seat belt survey revealed a majority of JSC employees are utilizing their seat belts, but at least one JSC safety official says they can do better.

As part of the Occupational Safety and Health Administration's annual report, employees of Hernandez Engineering conducted a vehicle survey Nov. 28 to determine the percentage of drivers and front seat passengers who were wearing seat belts.

Working as two-person teams, observers monitored JSC gates and intersections from 7 a.m. until 9 a.m. During that period, 1,455 vehicles were surveyed. Of those with civil servant decals, approximately 84 percent complied with the seat belt law. Additionally, seat belt law conformity averaged 58 percent for government vehicles driven on site.

Stacey Nakamura, chief of the Health, Safety, and Environmental Compliance Office, reacted to the survey results. "Seat belts save lives, and we should have 100 percent compliance. It is the simplest thing we can do to save lives."

**Johnson Space Center
Executive Safety Committee's
New Year's Resolutions**

- **Make JSC the safest NASA installation**
- **Achieve significant, measurable progress toward recognition of JSC as a Center of Excellence for Occupational Safety and Health (CEOSH)**
- **Foster the mindset in all JSC employees that all mishaps can be prevented**
- **Always do everything possible to maximize effective, two-way communication**
- **Establish clear expectations and ensure their promulgation to and understanding by all JSC employees**
- **Better the NASA Headquarters-established FY96 goals for lost workday case rates to achieve the JSC "Vision" performance rates,* by category, as listed below:**

Category	NASA Goal	JSC Vision
Civil Service	0.30	0.18
Contractor	1.55	0.09
JSC Team	0.94	0.58

- **Reduce the JSC FY96 lost workday duration/severity rate by 10 percent**

*Rate is equal to number of incidents per 100 man-years of work.

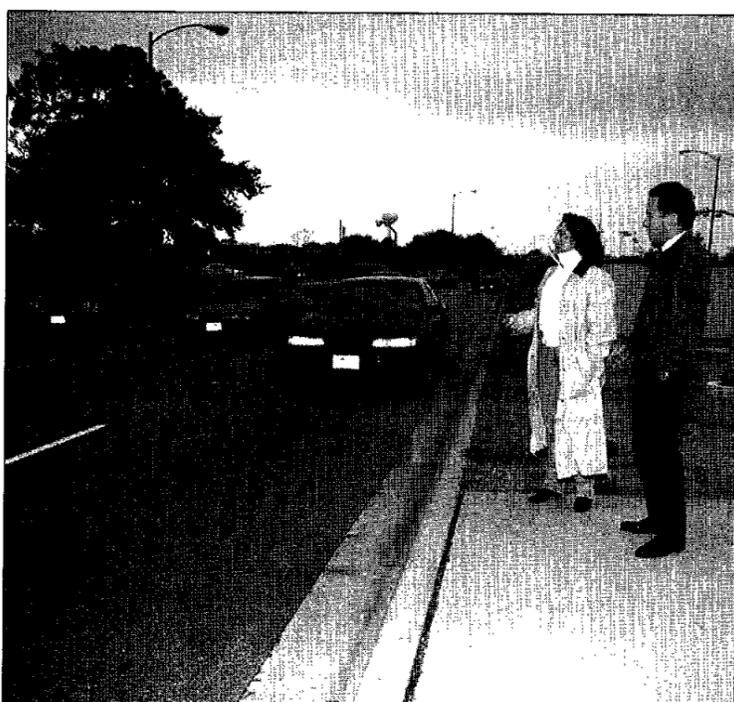
Safety, Health join forces in '96

Plans are underway for the 1996 Safety and Total Health Day.

Combining the Safety Awareness Day with the Total Health Pond Party will give employees a chance to spend time concentrating on safety and health issues. The 1996 observance, targeted for late October, will host collective efforts from Total Health and safety.

By combining the best elements of these previously separate events, the '96

stand-down day should prove to be enlightening and enjoyable. The initial plan calls for including interactive displays for employee involvement and education; informational booths and briefings; self evaluation of safety plans and health check-ups; and self inspections. A subcommittee is forming now. Any employee interested in participating should contact Larry Neu at x30559 for information.



Jonathan Manning and Sonia Fontenot of Hernandez Engineering check whether government employees are wearing seat belts as they enter the front gate as part of the Occupational Safety and Health Administration's annual report. Of the 1,455 vehicles surveyed 84 percent of drivers and front seat passengers were wearing safety belts as they drove through JSC gates.

System modifications will improve drinking water

Continued from Page 3

Because the system has a number of low water flow and dead end legs, these locations tend to have low residual chlorine, the substance that keeps the water system free from bacteria growth.

"The potable water distribution system at JSC is an old utility system, but it has been a very dependable system," said Dennis Perrin of JSC's Mechanical Operations Office. "In the spring of this year we had a water quality problem which we did not understand. Through the hard work and effort of the site water system engineer and with the help of a water system consultant we feel that we now know why we had the problem."

"New water treatment methods and changes to the distribution are positive steps to correct the problem. The bottom line is that the drinking water at JSC is safe and of good quality but will have a chlorine taste and smell at some site locations until the modifications to the treatment facility and distribution system are completed," Perrin said.

JSC has two drinking water supply systems. The main water supply is surface water which is obtained from the large main line that comes from the City of Houston Southwest Water Plant. The line is routed down Highway 3 and supplies all of the surrounding communities including the Clear Lake Water Authority. JSC buys surface water from the CLCWA. The second supply system is made up of two site water wells, thereby maintaining a capability to disconnect from the CLCWA system and pump and supply our own water.

JSC disconnected from the CLCWA supply from April until September. Just after the heavy rains in February, JSC started picking up high coliform counts on site at various locations and could not understand the problem as well as control the problem. At that time a water system consultant reviewed the facts and developed a solution. Tests showed that the source of the bacteria was not in the JSC system but most likely coming from the water supply stream. At that time, JSC disconnected from the CLCWA supply line and started to use site well water. The result was that the coliform count in the JSC water system dropped and in turn the overall chlorine level was reduced. Next, JSC started a treatment process on the distribution piping to control biofilm layers. Finally, the 18-inch supply line that connects the JSC site water system to the CLCWA metering

station was cleaned and a considerable amount of silt was removed. This line is a JSC line but it is maintained by the CLCWA.

JSC is currently using the Clear Lake City Water Authority supply line but the quality of the drinking water at JSC continues to be a high priority. Weekly water samples are taken at a number of site locations and the samples are tested for free chlorine, total chlorine, ammonia, turbidity, coliform and heterotrophic bacteria.

Slight discoloration of the drinking water is another issue that is currently being addressed. Any time the site water distribution system is working, the water will turn brown because the rust and film layer on the inside of the piping is disturbed. The lines are flushed after any repair work is completed and the water sampled for residual chlorine. If short term flushing does not remove all discolored water from the system, the discolored water may show up in JSC buildings.

JSC routinely collects drinking water samples for state testing. The drinking water samples are representative of water throughout the system. JSC is required to submit a minimum of 10 water samples each month for bacteriological analysis. Any time that a drinking water sample contains a coliform bacteria count then a resample is required at the point source location and at a point up-stream and down-stream of that location.

The Texas Natural Resource Conservation Commission sets drinking water standards in Texas and has determined that the presence of total coliform is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water. Samples are taken four days each week at JSC. Residual chlorine is monitored for 1 to 2 parts per million at the problem areas and this results in higher chlorine levels at most of the mall buildings.

The TNRCC requires a minimum total chlorine residual of 0.5 ppm at all points in the water distribution system. Most of the complaints received about the JSC drinking water are about the chlorine taste or odor. It has been documented that high levels of chlorine, although not very palatable, are not harmful to consume.

Technical experts list available via Internet to aid employees

A new JSC "Subject Matter Experts List" is now available to JSC employees who are looking for advice in one or more technical or administrative disciplines.

The list has been updated from the old "Technical Experts" list to include a broader spectrum of the work being conducted at JSC and currently includes only the names of civil servants recognized as experts in various disciplines.

JSC onsite and offsite personnel can access the Subject Matter Experts List via the JSC Home Page or the JSC Safety Home Page or can access the list directly via the Internet at: <http://www.jsc.nasa.gov/jsc/safety/consult.html>

The list has an "amber" security rating to allow Internet access only to personnel in the NASA community.

Hard copies of the list also are available.

Hard copy requests and updates and changes to the list may be submitted to the Health, Safety and Environmental Compliance Office via written notice or electronic mail.

All changes must be approved at the submitting organization division level.

To submit changes, please include discipline, expert's name, organization mail code, and telephone number. Send to Mark Klebig, E-mail MKLEBIG, HEI, Bldg. 225.

Antarctic Astronauts

Antarctic researchers help JSC scientists learn about human isolation

By Eileen Hawley

The barren terrain of the Antarctic—bleak and harsh—looms for many miles in either direction as a group of explorers stands isolated against the stark whiteness.

They come to study the glaciers and the environment, spending up to one year in the isolated world of the Antarctic. Most recently, they also have been documenting their experiences and feelings to provide NASA with information on long-term existence in an extreme environment.

Researchers here at JSC, in partnership with the Australian Antarctic Division, are looking at long-term expeditions in Antarctica as an analog for future long-duration space flight. Using an innovative computer program to track the moods and responses of the expedition team members, JSC's Behavior and Performance Laboratory is gathering data that may help improve conditions for astronauts on future long-duration missions.

"The Antarctic environment offers many similarities to the space flight experience," said Deborah Harm, head of JSC's Neurosciences Laboratory. "Both require self-contained and self-supporting life support systems, and impose some level of isolation on the participants."

In 1988, a conference in California first looked at the Antarctic experience as a possible analog to space flight. In 1993, NASA and the Australian Government entered into a partnership to study the Australian expeditions to the Antarctic.

The Australian government has been sending expeditions to the Antarctic since 1947. Some groups winter over in the research settlement, while other smaller groups conduct tractor caravans during the summer to perform glaciological investigations. The JSC investigation currently is focusing on the interactions between members of two summer tractor traverse groups.

"The Antarctic hasn't changed since the days of Scott and his expeditions," said

Desmond Lugg, the head of Polar Medicine for the Australian Antarctic Division. "It's still dangerous and the climate is atrocious, much like you find in space."

A space-walking astronaut may experience temperature extremes ranging from minus 135 degrees Fahrenheit (minus 93 degrees Celsius) to plus 150 degrees Fahrenheit (plus 27 degrees Celsius) depending on whether they are exposed to sunlight or sheltered by the shuttle's payload bay or any other space structure, such as a satellite or the International Space Station.

By comparison, the Antarctic explorers live daily with temperatures of about minus 58 degrees Fahrenheit (minus 50 degrees Celsius) in the winter and 14 to minus 4 degrees Fahrenheit (minus 10 to minus 20 degrees Celsius) in the summer.

The caravans provide an excellent study group, with six participants spending up to 100 days traversing the Antarctic in tractors.

"They have routine chores to perform—keeping the tractors and life support systems going as

well as the glaciological investigations," Lugg said. "They venture outside the tractors, weather permitting, to dig pits to look at snow stratification and to put out weather stations. It's quite a strenuous program and on the first summer, they worked 14 days nonstop, so it probably is akin to astronauts in space maintaining themselves and performing experiments."

When weather doesn't permit outside activity, such as when a blizzard keeps the six men inside their vehicles for days on end, the isolation and inter-team relationships are put to the test. Once the blizzard abates and the expedition members venture outside, they are faced with the daunting task of digging the tractor out of the snowdrifts by hand.

"They are truly confined, and they drive very long hours," Lugg said. "They only move about five kilometers an hour and to cover 3,000 kilometers in 100 days—bearing in mind they can stop for hours on end

due to blizzards—they've got a very serious task."

Harm, in conjunction with Joanna Wood of the Behavior and Performance Lab, now has tracked two summer caravan groups and has 100 percent compliance from the participants.

"We looked at the various aspects of mood, group and individual performance, teamwork issues like cohesion, conflicts and conflict resolution," Wood said. "We are trying to get a good general sampling about how life is for the team members and how they respond to it."

The life has its dangerous and difficult moments. Much like astronauts on board a space shuttle or space station, the expedition members must share a limited space. While some astronauts venture out for space walks, so do expedition members venture out from the tractors to dig ice core samples.

"You can't travel any great distance away from the safety of the caravan," Lugg said. "The danger of stepping off into a crevasse is very real, and when you see some of the sizes of the crevasses, it's very dangerous. So, it's not the gravity effects or the vacuum of space, but you're still confined and isolated in an extremely unforgiving environment."

The customized software program developed by the Behavior and Performance Lab provides real-time readings on team members' responses to a variety of situations. The software is loaded on to a laptop computer that the caravan members take along with them. Twice a week, they respond to a questionnaire and the answers are stored on the computer for later analysis.

"The benefit is that you get the real story and not a sanitized version," Lugg said. "We have anecdotal evidence of conflicts between caravan members, but by the time they get back to Australia, the story is sanitized. This program is getting real time readings."

The questionnaire is designed to be easy to use. Some questions can be answered with a "yes" or "no," while others invite the respondent to write as much or as little as they please.

For completing the questionnaire, the respondent receives a "reward"—sometimes a digitized photo of home, the recorded voice of a family member, a short piece of film or a favorite piece of music.

The individual rewards were collected and placed on the computer by Wood and her colleagues.

"We asked them about things they were interested in," Wood said. "Cartoons or sounds. For instance, one person wanted to hear the sound of rain falling on the roof because there is no rain in Antarctica."

"The teams were very delighted with what they got," Lugg said. "It's these sorts of things that are important: color themes, private space, a favorite book. Even in their isolation, people like their little bit of privacy, yet they still want to see and experience the outside world."

Much like shuttle crews, the members of the expeditions represent specialists in a wide variety of disciplines working to support the overall mission. The groups that winter over in the Antarctic frequently find unique ways to keep themselves occupied. According to Lugg, they have occasionally formed a musical band, and often conduct lecture series.

"Everybody is a specialist in their own right," Lugg said. "Although they do have to share communal duties. Each person will take a turn and give their skills to the others. There's considerable intermixing of disciplines. Sometimes the chef will teach the others to bake bread and let them have a go at it."

There are a few unique positions in the expedition—a team leader, much like a mission commander; a chef and a medical doctor. The remaining team members, while specialists in their own field, perform much

as a mission specialist on board the shuttle working in a variety of disciplines.

Organizers of the Antarctic expeditions discovered it was more efficient to hire a chef for the winter groups for a number of reasons.

"It's more productive to have one person who is responsible for the cooking, when you consider that we're talking about three meals a day for 20 or more people in the winter groups," Lugg said.

According to Lugg, food is a very important consideration for extended, isolated stays. On his first expedition to

the Antarctic, Lugg ate pemmican—a jerkey-like dried meat—the staple of expeditions in the 1800s. The culture has changed and Lugg reports that expedition members now make full use of microwaves and improvements in food technology to eat traditional foods.

A medical doctor also is assigned to each team, although two other team members are trained in emergency care and all team members can perform basic first aid.

"On the shuttle in an emergency, you can get your people back very quickly," Lugg said. "With the winter groups, due to the extreme weather conditions, we're looking at nine months to return someone. The team is completely isolated and the aircraft is not capable of flying in to pick up an injured or ill team member."

The doctor must be able to deal with any emergency medical situation—from frostbite (a surprisingly rare occurrence considering the climate) to skull fractures—working with semi-trained assistants.

Another important factor in the mental well-being and morale of the team members, is color. In space, astronauts can enjoy spectacular views of the Earth and the skies, but in the Antarctic, the view is—in a word—white.

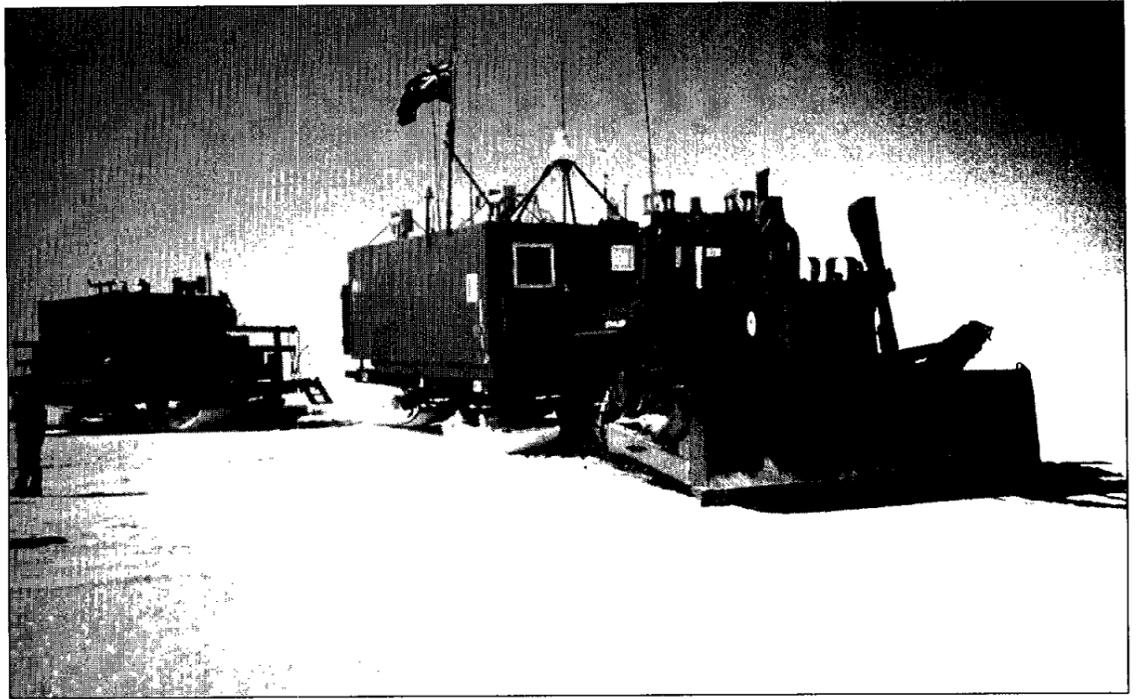
"When you join us, you get a red or yellow parka, blue socks, different colored jumpers," Lugg said. "Everything is bright and that's important. Walls, floors, they all need to have some color to them."

Harm and Wood are just now looking at data gathered from the two summer tractor traverse groups and have partial data from a nine-month winter group.

"We have not yet identified any specific needs," Wood said.

According to Harm, the program looks not just at the group factors of leadership and team performance, but at the needs and desires of the individual team members as well.

"This is truly a unique opportunity, both for NASA and the Australian Antarctic program," Lugg said. "This is a true collaboration. There is no money exchanged between the two programs, it is a true collaborative effort and it's working exceedingly well." □



Photos courtesy of Australian Antarctic Division

From Top to bottom, left to right: 1) Antarctic explorers travel in caravans spending up to 100 days traversing the cold glaciers during the summer to perform glaciological investigations. 2) Water chemical analysis helps scientists learn more about the Antarctic region. 3) Expedition members venture out from the tractor to dig ice core samples. 4) Large stations like the Mawson station near the expedition travel routes are desolate.

Galileo probe suggests planetary science reappraisal

Preliminary analysis of early data returned by NASA's historic Galileo probe mission into Jupiter's atmosphere has provided a series of startling discoveries for project scientists.

Information on the extent of water and clouds and on the chemical composition of the Jovian atmosphere is particularly revealing. Probe instruments found the entry region of Jupiter to be drier than anticipated, and they did not detect the three-tiered cloud structure that most researchers had postulated. The amount of helium measured was about one-half of what was expected.

These initial findings are encouraging scientists to rethink their theories of Jupiter's formation and the nature of planetary evolution processes, according to probe project

scientist Richard Young of Ames.

"The quality of the Galileo probe data exceeds all of our most optimistic predictions," said Wesley Huntress, NASA Associate Administrator for Space Science. "It will allow the scientific community to develop valuable new insights into the formation and evolution of our solar system, and the origins of life within it."

The probe made the most difficult planetary atmospheric entry ever attempted, according to probe manager Marcie Smith of NASA Ames. Entering Jupiter's atmosphere on Dec. 7, 1995, it survived entry speeds of over 106,000 mph, temperatures twice those on the surface of the Sun and deceleration forces up to 230 times the strength of gravity

on Earth. It relayed data obtained during its 57-minute descent mission back to the Galileo orbiter more than 130,000 miles overhead for storage and transmission to Earth. The orbiter is now embarking on a two-year mission to study Jupiter and its moons.

"The probe detected extremely strong winds and very intense turbulence during its descent through Jupiter's thick atmosphere. This provides evidence that the energy source driving much of Jupiter's distinctive circulation phenomena is probably heat escaping from the deep interior of the planet," Young said. "The probe also discovered an intense new radiation belt approximately 31,000 miles above Jupiter's cloud tops, and

a veritable absence of lightning," he noted.

The composition of Jupiter's atmosphere offered some surprises, according to project scientists. It contains significantly lower than expected levels of helium, neon, and certain heavy elements, such as carbon, oxygen and sulfur.

What are the implications of these findings? Most scientists believe that Jupiter has a bulk composition similar to that of the gas and dust cloud of the primitive solar nebula from which the planets and our Sun were formed, with added heavy elements from comets and meteorites. The probe's measurements may necessitate a re-evaluation of existing views of how Jupiter evolved from the solar nebula.

Irony strikes at Ellington

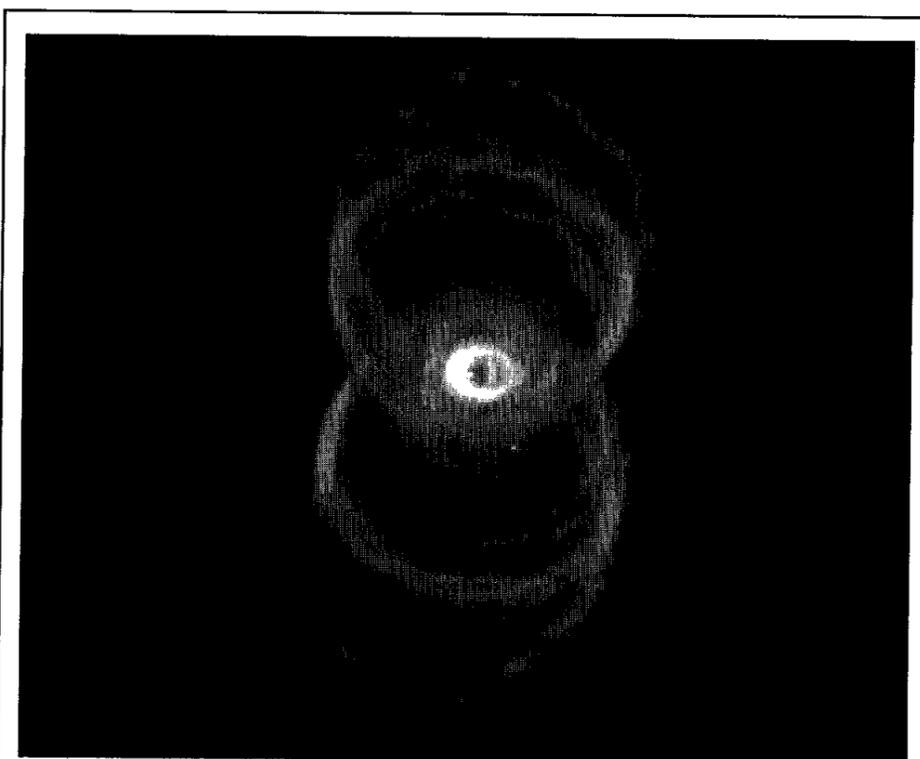
When President Bill Clinton stepped up to the microphone at Ellington Field on Saturday, he probably didn't notice that some of the same equipment used by the White House was being used by NASA.

But the JSC Staging and Presentation personnel who set up the public address system were stricken by the irony.

That group of Media Services Corp. employees are often faced with difficulties because of the open air landing strip and blowing wind. Several months ago, team member Patrick Quinn suggested tracking down wind screens like those used by the president. He called local stores to no avail, and then at the suggestion of team leader Bill Taylor contacted the White House Communications Office.

Turns out those screens, nicknamed "goose eggs" because of size and shape, are specially made for the President. The White House gave the JSC team information on the vendor and model.

STS-72 was the first crew to use the new system—and who should show up, but the President himself.



A new photo from the Hubble Space Telescope of a young planetary nebula about 8,000 light-years away shows the dramatic death of a Sun-like star. This is one of six new images from the Hubble Space Telescope that are now available via the World Wide Web at URL: <http://www.hq.nasa.gov/office/pao/NewsRoom/today.html>

Ames director to take top Moffett Field post

Ken Munechika, director of Ames Research Center, has been named to a newly-created position as director of the Moffett Federal Airfield and Henry McDonald will take over the reins of Ames on Mar. 4, NASA Administrator Daniel S. Goldin announced last week.

"This move reflects the increasing importance of California's Moffett Field to its current and future occupants and to the Silicon Valley," Goldin said. "Dr. McDonald brings to Ames strong research experience in information systems applications, computational physics and aerodynamics, combined with technical and managerial skills that will reinforce NASA's commitment to aeronautical and space research."

Since July, 1994 when Naval Air Station Moffett Field was disestablished, NASA has served as the host agency currently occupied by more than 10,000 active duty military, civilian and military reserve personnel.

Munechika will be responsible for seeing that the resident agencies and the Ames Research Center are provided with all the services normally associated with a federal airfield, including control tower operations, crash, fire and rescue operations and maintenance.

"Information technologies and their applications are key building blocks for all future aeronautics and space endeavors," Goldin said. "As one of the world's most eminent research facilities, Ames has been selected to become NASA's Center of Excellence for information technology. Under Dr. McDonald's leadership Ames will blaze a new broad trail in information systems technology and continue worldwide leadership in airspace operations and astrobiology."

Russian spacecraft lands at Space Center Houston

By Karen Schmidt

A Russian Vostok capsule—the same type used to launch the first man into space—is one of many featured attractions and events at Space Center Houston in 1996 and volunteers can help bring this space attraction and others closer to the public.

The capsule, used as a military mapping satellite, weighs two and one half tons and gives visitors a close-up view of Russian space technology in the 1960s. Vostok, which means east in Russian, is the same type of capsule that launched Yuri Gagarin into space on April 12, 1961, just three months prior to American Alan Shepard's Mercury flight on May 5.

The Vostok capsules were used exclusively by the Russians until 1963. Cosmonauts ejected from their capsules and parachuted to Earth instead of returning to Earth in their capsules. Vostok 3 and 4 were the first spacecraft to rendezvous in space in 1962 approaching within three miles of each other. The last Vostok capsule carried the first woman into space, Valentina Tereshkova, on June 16, 1963. The Vostok capsule will remain on display at SCH until March 9.

One new feature for visitors to enjoy is "Close Encounters." Every Tuesday morning at 10:30 a.m. January - May, JSC scientists and engineers will give special presenta-

tions and bring visitors closer space in the Mission Status Center. Visitors also can learn more about how lasers and holograms are being used in today's industry, medicine, space travel, communications and entertainment in the "Lasers and Holograms: Discovering the Splendid Light," display.

Other ongoing activities include "A Vision of the Future: The Art of Robert McCall." McCall's murals, paintings, illustrations and crew patch designs will be on display until March. "Cosmic Collisions" is a multimedia exhibition that explores the mysteries of Antarctic meteorites and impact craters, provides clues to the extinction of dinosaurs and highlights the cosmic comet crash of Shoemaker-Levy 9 with Jupiter.

IMAX feature films currently playing at SCH are "To Be An Astronaut," which explores the personal experiences of astronauts from classroom lectures to on-orbit operations. "Hail Columbia" details the beginning of the space shuttle program and pays tribute to the American space program. "The Dream is Alive" includes footage taken by 14 different astronauts in 1984 and is a production of launches, a satellite capture and repair, space walks, landings and a look at life in space.

Education also is a primary focus for the '96 season. SCH's Educational Programs Department will host a Discovery Day on Feb. 15 where students with physical, auditory and mental challenges can participate in the "hands-on" experience at SCH.

"Careers in Space Week" slated for Feb. 19-23, will feature special speakers who will discuss with student groups and other guests what it takes to be part of the manned space program.

In a two-day event sponsored by the Boeing Co. and Southwest Airlines in cooperation with JSC, SCH will host an International Space Station Educator's Conference Feb. 9-10. This second annual conference is designed to bring the space station closer to teachers through interactive workshops and demonstrations.

February also has been designated Boy Scout month at SCH and includes special discounts for troops to experience space first hand.

Spring Break Camps also are on the agenda for '96. Day Camps will feature Rocket "Engine"-uity, Shuttle Orientation, Lego Exploration and If It Suits You activities for children of all ages. This year the program has expanded in conjunction with

the University of Houston-Clear Lake to conduct camps at local libraries. In addition, special programs have been created for children ages five to seven. Day camps will be held from March 11-15 and March 18-22.

JSC employees are encouraged to share their experiences and expertise with guests at SCH. Volunteers are classified as either "on-stage" as in the case of greeters or mission briefers, or "backstage" for office workers or wardrobe.

"This is definitely a fun way to give our guests a very personal experience during their visit," said Amanda Tutt, human resources administrator at Space Center Houston. "JSC's employees have a unique perspective on our human space flight program and this program will give them a chance to share their own enthusiasm for NASA's achievements with our visitors from all over the world."

Volunteers are asked to devote one four-hour shift per week and an enrollment fee of \$20 to cover the cost of a volunteer shirt and training materials. Volunteers receive the added benefit of complimentary tickets to SCH as well as other gifts. Volunteer orientation is scheduled for mid-February. JSC volunteers will be a welcome addition for this year's special events. For more information on these attractions or to volunteer call SCH at 244-2105.



Rookies in awe over view

(Continued from Page 1)

flyer, this was a real exciting mission. There were a lot of things I had to learn about, living in space," Jett said. "Brian and Leroy did a great job of keeping all four rookies in line." Jett said things worked so well because the training team kept it simple.

Mission Specialist Leroy Chiao echoed Jett's sentiments. "We had a great mission, a great NASA team and a great bird," Chiao said. "The highlight for me was the two space walks and I want to say a big thank you for everyone that supported us."

Mission Specialist Winston Scott reflected on his first experience at space flight. "Every space flyer, especially every first time space flyer,

thinks his or her mission is special, I am no exception to that," Scott said. "The thing that is really special on this mission is the team work."

Mission Specialist Koichi Wakata greeted his friends and colleagues. "I really enjoyed working with everybody, I learned a lot," Wakata said. "The success of this mission would not have been possible without the efforts of Mission Control, people from the SFU project in Japan and the support of the Japanese Space Agency."

Mission Specialist Dan Barry was overwhelmed at the view from space and reflected on a special moment. "The views and the colors are beyond all expectations," Barry said.

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STS-80 to feature space walks

(Continued from Page 1)

creating a super vacuum in its wake in which to grow thin film wafers for use in semiconductors and other high-tech electrical components. The ORFEUS instruments are mounted on the reusable Shuttle Pallet Satellite and will study the origin and makeup of stars. Astronauts Jernigan and Jones will conduct a space walk during the mission to continue the flight test and evaluation of hardware for future space walks or extravehicular activity.

Columbia's next flight after STS-80 will be a 16-day mission to conduct multiple experiments in materials science research in a pressurized laboratory mounted in the payload

bay. As payload commander, Voss will oversee the long-range planning and organization necessary for that mission.

Cockrell, 45, will be making his third flight on the shuttle. Rominger, 39, completed his first shuttle flight in October 1995 aboard Columbia on the STS-73 mission. Jernigan, 36, has flown three times on the shuttle: Jones, 40, flew on two shuttle missions aboard Endeavour in April and October, 1994. Musgrave, 60, has flown on five shuttle missions. Voss, 39, flew on STS-57 aboard Endeavour in June, 1993 and STS-63 aboard Discovery in February, 1995. Thomas, 40, will be making his third flight aboard the shuttle.